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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

JAN 13 1993

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of	)	
	)	
Redevelopment of Spectrum	)	ET Docket No.92-9
to Encourage Innovation in the	)	
Use of New Telecommunications	)	RM-7981
Technologies	)	RM-8004

COMMENTS OF  
GE AMERICAN COMMUNICATIONS, INC.

GE American Communications ("GE Americom") hereby comments on the Third Notice of Proposed Rulemaking in this docket,<sup>1</sup> which proposes a transition framework for accommodating fixed microwave operations that may be required to yield the 2 GHz band to new telecommunications technologies.

As its goal for an orderly transition of microwave users from the 2 GHz band, the Commission proposed to "reaccommode the 2 GHz licensees in a manner that is the most advantageous for these existing users, least disruptive to the public and the most conducive to the introduction of new services."<sup>2</sup> GE Americom believes that the requirement that the transition be "least disruptive to the public" includes both the users of 2 GHz microwave services as well as users of incumbent services in the bands to which these microwave facilities would be located.

Accordingly, GE Americom desires that the Commission adopt a

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<sup>1</sup> Order FCC 92-437 (released Oct. 16, 1992), 57 Fed. Reg. 48776 ("Third NPRM").

<sup>2</sup> Notice of Proposed Rulemaking, 7 FCC Rcd 1542, 1545 (1992).

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transition plan that meets these goals, including the goal of avoiding disruption to the services of customers that use C-band satellites to downlink their services to over fifty million consumers. This can be accomplished, among other means, by adopting a special, longer transition period after the expiration of the standard transition period established pursuant to the Third NPRM before involuntary relocation proceedings can be invoked to relocate a 2 GHz microwave licensee to the 4 GHz band. GE Americom is proposing that the length of this additional period should be at least three years.

C-Band Satellite Users Have Special Needs That  
Would be Affected By the Relocation of 2 GHz Licensees

GE Americom has been a pioneer in domestic satellite communications and currently operates an in-orbit fleet of five in-orbit C-band satellites and two Ku-band satellites, and is constructing a hybrid C/Ku-band satellite. GE Americom's C-band satellites use the 4 GHz band, which they share on a co-primary basis with common carrier fixed microwave operations, to downlink signals that ultimately provide cable video, audio and other communications services to over 50 million U.S. households, millions more home satellite dish users, and thousands of commercial and government users throughout the country. These incumbent uses of the 4 GHz band make it vital for the Commission to adopt a transition plan that recognizes the special needs of customers using C-band satellites.

GE Americom is concerned that the 4 GHz band may be viewed

by 2 GHz band microwave operators as the most economically attractive alternative to 2 GHz and that, without relief from the Commission, the operation of these services will swamp the 4 GHz spectrum and make it virtually impossible to grow the benefits of C-band video, audio and other services to a vast segment of the public.<sup>3</sup>

The entry of these new operations into the 4 GHz band in any significant numbers within a short span of time will substantially impair the growth in licensed and unlicensed antennas, as well as the ability of C-band satellite users to convert their reception equipment from analog to digital signals for the viewing of compressed video as well as Advanced Television. These important pro-consumer advancements may not be possible unless the Commission adopts special rules for 2 GHz licensees that seek to relocate into the 4 GHz band.

What follows is a description of one way that the Commission could protect the interests of C-band satellite services. It is

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<sup>3</sup> GE Americom's concern that additional microwave operations in the 4 GHz band will have an adverse effect on C-band satellite operations is heightened by the proposal contained in the Further Notice of Proposed Rulemaking in this docket, 7 FCC Rcd 6100 (1992). This proposes to eliminate the  $\pm 10$  MHz guardbands between satellite and microwave channels that are the minimum necessary to protect infliction of harmful interference on C-band analog services. Even if, as GE Americom and others have urged, the C-band rechannelization proposal of the Further Notice is not adopted, special transition rules, as recommended in this filing by GE Americom, are necessary to protect the growth of C-band antennas and the timely introduction of satellite-delivered digital and compressed video programming.

not the exclusive means of protection, and GE Americom encourages the Commission to consider equally effective ways of protecting these interests.

**One Way of Protecting the Special Needs of Satellite Users  
Would be To Defer the Availability of Involuntary Relocation  
When Microwave Services Seek Relocation to the 4 GHz Band**

As a general matter, GE Americom endorses the proposal of the Commission to establish a certain transition period for relocation of incumbent 2 GHz licensees exclusively by private arrangements negotiated with new technology service licensees. Such a proposal recognizes the superiority of negotiated agreements over those imposed by regulation, since private parties can be trusted to know best the costs and other issues involved in relocation and to resolve any differences in discussions between themselves. Involuntary relocations should be used only as a last resort after the expiration of an appropriate transition period.

As a general rule, GE Americom favors a ten-year transition period (or longer) because of its uncertainty about the ability of microwave users to effect a seamless, disruption-free transition from the 2 GHz band in any shorter period. A ten-year transition period would also allow for necessary engineering and financial studies to develop the costs of relocation (which include the cost of coordinating with incumbent users on the new band) and possibly the development of technology that might permit more effective spectrum sharing. In addition, a ten-year transition period might reduce the needs of microwave users for

new frequencies due to the increased availability of fiber optic facilities.

Irrespective of the length of the transition period, one way of protecting the special needs of C-band satellite users would be for the Commission to require an additional period when the proposed relocation of a 2 GHz microwave licensee involves 4 GHz frequencies. Using a ten-year transition period and a three year extension as an example, this would mean that negotiations would be the exclusive means for relocation of a microwave user into the 4 GHz band for thirteen years after licensing of the emerging technology service. After expiration of this thirteen-year period, the Commission could make available appropriate involuntary relocation proceedings similar to those applicable to 2 GHz services forced to relocate to bands other than 4 GHz after expiration of the standard transition period.

Such a step will, by modulating the pace of entry of microwave users into the 4 GHz band, accomplish the important objective of preventing the 4 GHz band from being too quickly swamped with new services resulting from involuntary relocations. Precipitate demand for 4 GHz frequencies by displaced 2 GHz microwave operations, as might be caused by involuntary relocation of multiple microwave licensees, will disrupt the natural growth of the antenna base used to downlink C-band satellite signals and the ability of C-band video programmers, cable systems, and home satellite dish users to install the necessary hardware in their antennas to receive digital

compressed television.<sup>4</sup>

GE Americom believes that a process of negotiated relocations of 2 GHz licensees will fairly spread the migration of 2 GHz users over a manageable period by using the marketplace as a resolution mechanism. Some emerging technology service providers, for example, would be willing to pay more for 2 GHz frequencies in order to relocate a microwave user as soon as possible, and some microwave users could easily accomplish a move to new frequencies. On the other hand, GE Americom is extremely concerned that there will be a significant number of 2 GHz microwave users that will not be able to come to agreement with new technology service providers about relinquishment of their existing frequencies and that will be forced into involuntary relocations after the expiration of a transition period. If these involuntary negotiation proceedings are concluded relatively quickly, the result may be a concentrated demand for 4 GHz frequencies occurring too fast to avoid substantial harm to the cable viewing public and others.

A too rapid entry of microwave licensees into the 4 GHz band will, by saturating available frequencies, impair the growth of C-band satellite antennas and possibly prevent or significantly

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<sup>4</sup>

Because the energy in a digital compressed video channel is more uniformly distributed than is the energy in an analog video channel, the present  $\pm 10$  MHz offset between the center frequency of a C-band transponder and a microwave channel, even when augmented by filters, may not be sufficient to allow a digital signal to be received without harmful interference.

delay the introduction of digital and compressed television, which require frequency offsets of at least the  $\pm 10$  MHz that exists today. This is why C-band satellite users need more time than others to grow the antenna base to accommodate the expanded satellite fleet the Commission has authorized and to equip these antennas with the necessary equipment to receive digital and compressed television. Without additional time, the frequencies will simply not be available due to saturation by interleaving microwave users.

It must be emphasized that this way of protecting the needs of satellite users does not constitute a temporary "moratorium" on the entry of additional microwave users into the 4 GHz band. The Commission's rules provide that microwave services can obtain frequencies in this band at any time, subject only to Part 21 coordination procedures, and extension of negotiations when relocation into the 4 GHz band is involved will not entail modification of these rules. The fashioning of a solution providing special transition rules would merely allow relocations of 4 GHz users to be spaced out so as to permit additional growth of C-band earth stations and the installation of hardware to the earth station base so that digital and compressed television may be installed.

Deferring Involuntary Relocations  
When 4 GHz Frequencies are Sought  
Fairly Balances All Interests Concerned

A special transition rule of the sort given here, which would be applicable only when a proposed relocation of a

displaced microwave service involves 4 GHz frequencies, fairly balances the needs of new technology services for 2 GHz frequencies, the needs of microwave users to avoid disruption, and the needs of over fifty million households, as well as commercial and government users, to have expanded offerings of cable, direct-to-home video, and other communications services free of harmful interference.

The solution proposed here will not act to prevent or unduly delay the introduction of new technology services into 2 GHz bands, since the rules the Commission is proposing in the Third NPRM would permit negotiated relocations of microwave licensees into the 4 GHz band at any time. All that would be deferred would be the availability of involuntary relocation procedures, and these only when a 2 GHz microwave user seeks relocation into the 4 GHz band.

A solution extending the period for relocation negotiations to be conducted in these limited instances will also have the important benefit of giving a desirable process that uses voluntary relocations of 2 GHz licensees more time to work. In many cases, it may also avoid the need to resort to involuntary relocation. In addition, the minimum of three additional years proposed herein would provide further opportunity for the development of techniques for sharing spectrum between microwave and emerging technology uses and also make more possible the migration of some point-to-point services directly from microwave to fiber optic cables.



In conclusion, the Commission should pay special heed to the impact of relocation of microwave services upon C-band satellite users and adopt an appropriate solution that considers the special needs of the millions of users of C-band satellite services. The method proposed by GE Americom appears to fairly balance the interests of the parties in a manner which provides the greatest benefit to the public.

Respectfully submitted,

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